

APPENDIX B

KNOWLEDGE, SKILLS, AND ABILITIES (KSAs)

This appendix contains the KSAs that the geotechnical engineer must possess for the corresponding grade level. Skills to communicate in verbal and written form are common to all grade levels.

GS-0810-05/07/09 Geotechnical Engineer

1. Knowledge of basic geotechnical engineering principles.
2. Skill in use of computer hardware and software (basic and specific to discipline).
3. Knowledge/ability to communicate technical information orally.
4. Knowledge/ability to communicate technical information in written formats.
5. Ability to interrelate effectively with individuals and teams.
6. Knowledge of organizational structures and functions.

GS-0810-11 Geotechnical Engineer

7. Ability/skill in specialized geotechnical techniques, i.e., specialized geotechnical techniques, i.e., soil mechanics, geology, subsurface exploration/investigations, foundation design, shear strength, lab testing, analytical techniques, slopes, tunnels, etc.
8. Skill in computer applications as applied in geotechnical engineering.
9. Knowledge of construction methods and processes with respect to geotechnical aspects of projects.

10. Ability/skill to execute geotechnical applications in HTRW.
11. Ability/skill in geotechnical instrumentation and applications.
12. Knowledge of inspection/evaluation techniques.
13. Knowledge of materials and concrete and their applications.
14. Knowledge of risk and uncertainty.
15. Knowledge of engineering guidance documents and state-of-the-art, i.e., USACE criteria such as ER, ETLs, engineering literature/journals.
16. Knowledge of advanced geotechnical principles.
17. Knowledge of contracting principles and procedures.

GS-0810-12 Geotechnical Engineer

18. Ability/skill in conducting effective meetings and briefings.
19. Ability to effectively lead teams.
20. Knowledge of the geotechnical aspects of emergency management and operations
21. Knowledge of budgeting principles for nonfinancial managers.
22. Ability to manage technical engineering design processes for geotechnical products and services.
23. Ability to perform duties of embankment/earthwork engineer.
24. Ability to develop/execute the technical aspects of contract documents and/or scopes of work for AE contracts
25. Knowledge of dam safety policies, practices, and regulatory requirements.

GS-0810-13/14 Technical Expert

- 26. Ability to execute technical aspects of the planning process
- 27. Ability and technical expertise specific to region and geotechnical specialty.
- 28. Ability to apply USACE policies on technical review and quality assurance for products and services.
- 29. Ability to effectively lead teams.
- 30. Ability to develop effective interpersonal relationships.
- 31. Ability to apply value engineering principles to geotechnical aspects of projects.
- 32. Ability to apply policies, practices, and regulatory requirements for dam safety.
- 33. Ability to perform forensic geotechnical investigations.
- 34. Ability to serve as geotechnical expert in legal disputes in claims against the government.

GS-0810/1350-13/14 Manager

- 35. Ability to execute responsibilities and requirements of contracting officer's representative.
- 36. Ability to identify customers and their requirements.
- 37. Knowledge of computer systems (software and hardware) for use in planning equipment requirements, budget projects, workload execution, and training requirements.
- 38. Knowledge of partnering principles and applications.
- 39. Knowledge/ability (advanced) in all geotechnical aspects of projects and organizations.
- 40. Knowledge/ability in contract negotiations.

41. Knowledge/ability in adult learning principles and instructional methods.

GS-0810-15 Technical Expert

42. Knowledge of the “state-of-the-art” geotechnical principles, practices and procedures as they relate to civil works projects.
43. Ability to develop technical criteria and standards from the “state-of-the-practice” that are suitable for use in USACE civil works program.
44. Ability to work on interagency task groups.
45. Ability to provide sound, thorough and timely technical advice and consultation on complex geotechnical problems and issues.
46. Ability to manage large technical programs.
47. Skills and ability to communicate in verbal and written form.

GM-0810/1350-15 Technical Manager

48. Ability to plan, set priorities, schedule and supervise activities of an organization.
49. Ability to assess the technical needs and requirements of a large engineering organization.
50. Ability to identify the technical criteria, standards and practices that are needed to support the organizational missions, goals and objectives.
51. Ability to establish technical policy and procedures for a large engineering organization.
52. Ability to provide sound and timely technical advice to senior agency officials.
53. Ability to represent the agency in federal, non-federal and foreign government technical activities.